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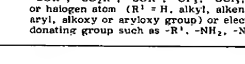
(6)

90-364868/49 A89 E13 L03 V07 JAPS 07.12.89
JAPAN SYNTHETIC RUBBER *JO 2262-627-A
08.12.88-JP-308825 (+ JP-316597) (25.10.90) C07d-215/18
C07d-237/28 C07d-239/74 C07d-241/44 C07d-401/04 G02f-01/35

Organic nonlinear optical element - comprises e.g. substd. quinoline derivs., useful as wavelength converting element

C90-158646

An organic nonlinear optical element comprises a cpd. of formula (I):



(I)

Z¹, Z², Z³ and Z⁴ = one or two = N and others are carbon atom or -CH=;

X and Y = electron attractive group such as $-NO_2$, -CN, $-COR^1$, $-SO_2R^1$, $-SOR^1$, $-CF_3$, $-CCl_3$, $-COOR^1$ or halogen atom (R^1 = H, alkyl, alkenyl, alkynyl, aryl, alkoxy or aryloxy group) or electron donating group such as $-R^1$, $-NH_2$, $-NHCOCH_3$, $-N(R^2)_2$, -N⟨A, $-NHNH_2$ or $-OR^2$ (R^2 = H, alkyl or aryl group, and -N⟨A = cyclic amino group);

n = 1-4; and

m = 1-3.

USE/ADVANTAGE

The nonlinear optical element is useful as wave length converting element and has comparable SHG characteristics with those of urea and is stable at room temp. and easily obtained as single crystals.

PREPARATION

(I), e.g. substituted quinoline derivatives can be synthesized by treating aniline having substituent with α,β-unsatd. carbonyl cpd., treating o-aminobenzaldehydes with aldehyde or ketone or introducing directly substituent into quinoline skeleton of quinoline cpd.

Single crystal of the cpd. (I) can be obtained by e.g. cooling-, slow evaporation-, recrystallisation-, sublimation- or zone melting method.

The nonlinear optical element can be made by e.g. dispersing fine crystals of the cpd. into high polymer matrix or by aligning the molecules dispersed in high polymer matrix by applying an external electric field.

POLYMER MATERIAL

The high polymer matrix is of e.g. polymethyl (meth)-acrylate or polystyrene.(7ppW50RBHDwgNo0/0).

A(8-M9C, 9-A2) E(6-D2, 6-D3, 6-D6) L(3-D1D)

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